IV. AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An apparatus for generating X-rays by irradiating a target with an electron beam, comprising

vibration applying means for vibrating said target in directions parallel to a surface thereof,

wherein said vibration applying means includes a piezoelectric device.

2. (Original) An apparatus as defined in claim 1, wherein said vibration applying means is arranged to vibrate said target so that said electron beam has a colliding spot describing, on said target, one of a linear track, a circular track, and a two-dimensional shape including zigzag and rectangular shapes.

3. (Currently Amended) An apparatus as defined in claim 1, further comprising ~~the~~ a vibration controller for controlling said vibration applying means based on one of a ~~tube~~ voltage, a ~~tube~~ current, an electron beam diameter, and a temperature measured adjacent a spot of electron beam collision.

4. (Currently Amended) An apparatus as defined in claim 3, wherein said vibration controller is arranged to control ~~the~~ a magnitude of vibration amplitude, the magnitude of the vibration amplitude being more than the electron beam diameter ~~and variable~~.

5. (Original) An apparatus as defined in claim 3, wherein said vibration controller is arranged to make the vibration frequency variable.

6. (Canceled)

7. (Currently Amended) An apparatus as defined in claim 6, wherein

said piezoelectric device is integrated with ~~a~~ said holder having said target to define a closed space.

8. (Currently Amended) An apparatus as defined in claim ~~1~~7, further comprising flexures for attaching and supporting said holder.

9. (Original) An apparatus as defined in claim 8, wherein said flexures are made by electrical discharge machining.

10. (Currently Amended) An apparatus as defined in claim 1, ~~wherein said target is vacuum sealed by~~ further comprising rubber elements or flexures to provide a vacuum seal.

11. (Currently Amended) An apparatus as defined in claim 1, wherein said target has a thickness up to twice the depth of electrons penetration calculated from a ~~tube~~ voltage and said target material.

12. (Original) An apparatus as defined in claim 1, wherein said vibration applying means is arranged to displace said target.

13. (Original) An apparatus as defined in claim 1, wherein said vibration applying means is disposed in an bore in which said target is located.

14. (Original) An apparatus as defined in claim 8, wherein said flexures are shaped thin in a direction of vibration of said target, and thick in a direction perpendicular to the direction of vibration.

15. (Currently Amended) An apparatus as defined in claim 1, wherein said target has a thickness corresponding to a diameter of ~~collision of~~ said electron beam colliding with said target.

16. (Original) An apparatus as defined in claim 1, wherein said target is disposed at an angle to said electron beam.

17. (New) An apparatus for generating X-rays by irradiating a target with an electron beam, comprising:

an electron gun operative for emitting electrons;

an electron lens having a bore extending therethrough for receiving and converging the emitted electrons;

vibration applying means for vibrating said target in directions parallel to a surface thereof, the vibration applying means disposed within the bore of the electron lens;

a holder connected to the vibration applying means and operative to hold the target within the bore; and

a vacuum vessel operative for containing the electron gun, the electron lens, the vibration applying means and the target in a vacuum.